Better air quality standards in China could save 3 million early deaths each year

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Adopting and enforcing tighter air quality standards in China could save 3 millionpremature deaths each year and may bring about tremendous public health benefits, say experts in *The BMJ* today.

Researchers led by Maigeng Zhou at the Chinese Center for Disease Control and Prevention in Beijing, predicted the short term effects of particulate air pollution (particle diameter less than 10 μm, PM10) on

mortality in 38 of China's largest cities from 1 January 2010 to 29 June 2013 (combined population of more than 200 million).

Over the study period, the daily mean of PM10 concentrations across all locations was 92.9 μg/m3.

The most polluted city in the sample was Urumqi in Xinjiang Province, with an average daily mean PM10 concentration of 136.0 μg/m3. The least polluted city was Qinhuangdao in Hebei Province, with an average daily mean PM10 concentration of 66.9 μg/m3.

Over 350,000 deaths were recorded during the study period. Although PM10 mortality associations varied substantially across different cities, the researchers found positive associations between daily mortality and exposure to PM10 in most (87%) of sampled cities.

On closer examination, they found that air pollution appeared to have a much greater impact on deaths due to cardiorespiratory diseases, such as asthma and chronic lung disease (COPD), than it did on deaths due to other causes.

They also found that the potential impact of PM10 pollution was greater for females than males; and that air pollution may primarily affect people aged 60 years or more.

This study involved modelled data which can make predictions about cause and effect, but cannot be used to draw firm causal conclusions. Additionally, the authors warn that the potential short term effects of particulate air pollution are city specific, and therefore estimates obtained from one city should not be generalised to all cities.

However, they suggest that bringing China's PM10 level to the WHO standard of 20 μg/m3 would save 3 million premature deaths each year.

They add that this number is likely to be a lower estimate of the total number of deaths related to air pollution because the air pollution effect can be larger in rural areas and PM10 is more detrimental to human health in the long run.

"Our findings suggest that adopting and enforcing tighter air quality standards in China will bring about tremendous public health benefits," they conclude.

More information: Particulate air pollution and mortality in 38 of China's largest cities: time series analysis
www.bmj.com/content/356/bmj.j667

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